



[6450-01-P]

**DEPARTMENT OF ENERGY**

**Office of Energy Efficiency and Renewable Energy**

[Case No. RF-029]

**Petition for Waiver of GE Appliances from the Department of Energy Residential Refrigerator and Refrigerator-Freezer Test Procedure and Grant of Interim Waiver**

**AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.

**ACTION:** Notice of Petition for Waiver, Notice of Granting Application for Interim Waiver, and Request for Public Comments.

**SUMMARY:** This notice announces receipt of a petition for waiver from GE Appliances (GE) seeking an exemption from specified portions of the U.S. Department of Energy (DOE) test procedure for determining the energy consumption of electric refrigerators and refrigerator-freezers. GE asks that it be permitted to use an alternate test procedure to address the difficulties in testing shared dual compressor systems according to the currently applicable DOE test procedure. DOE solicits comments, data, and information concerning GE's petition and the suggested alternate test procedure. Today's notice also grants GE with an interim waiver from the electric refrigerator-freezer test procedure, subject to use of the alternative test procedure set forth in this notice. The

waiver request pertains to the basic models set forth in GE's petition that incorporate shared dual compressor systems.

**DATES:** DOE will accept comments, data, and information with respect to the GE Petition until **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may submit comments, identified by case number "RF-029," by any of the following methods:

- Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.
- E-mail: [AS\\_Waiver\\_Requests@ee.doe.gov](mailto:AS_Waiver_Requests@ee.doe.gov) Include the case number [Case No. RF-029] in the subject line of the message.
- Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-2J/1000 Independence Avenue, SW, Washington, DC 20585-0121. Telephone: (202) 586-2945. Please submit one signed original paper copy.
- Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza SW, Suite 600, Washington, DC 20024. Please submit one signed original paper copy.

Docket: For access to the docket to review the background documents relevant to this matter, you may visit the U.S. Department of Energy, 950 L'Enfant Plaza SW,

Washington, DC, 20024; (202) 586-2945, between 9:00 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays. Available documents include the following items: (1) this notice; (2) public comments received; (3) the petition for waiver and application for interim waiver; and (4) prior DOE rulemakings regarding similar refrigerator-freezers. Please call Ms. Brenda Edwards at the above telephone number for additional information.

**FOR FURTHER INFORMATION CONTACT:** Mr. Bryan Berringer, U.S. Department of Energy, Building Technologies Program, Mail Stop EE-2J, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-0371. E-mail: [Bryan.Berringer@ee.doe.gov](mailto:Bryan.Berringer@ee.doe.gov).

Ms. Elizabeth Kohl, U.S. Department of Energy, Office of the General Counsel, Mail Stop GC-71, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0103. Telephone: (202) 586-7796. E-mail: [Elizabeth.Kohl@hq.doe.gov](mailto:Elizabeth.Kohl@hq.doe.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. Background and Authority**

Title III, Part B of the Energy Policy and Conservation Act of 1975, as amended (EPCA), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified), established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering most major household appliances, which includes the electric refrigerators and

refrigerator-freezers that are the focus of this notice.<sup>1</sup> Part B includes definitions, test procedures, labeling provisions, energy conservation standards, and the authority to require information and reports from manufacturers. Further, Part B authorizes the Secretary of Energy to prescribe test procedures that are reasonably designed to produce results that measure the energy efficiency, energy use, or estimated annual operating costs of a covered product, and that are not unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) The test procedure for electric refrigerators and electric refrigerator-freezers is contained in 10 CFR part 430, subpart B, appendix A1.

The regulations set forth in 10 CFR part 430.27 contain provisions that enable a person to seek a waiver from the test procedure requirements for covered products. The Assistant Secretary for Energy Efficiency and Renewable Energy (the Assistant Secretary) will grant a waiver if it is determined that the basic model for which the petition for waiver was submitted contains one or more design characteristics that prevents testing of the basic model according to the prescribed test procedures, or if the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially inaccurate comparative data. 10 CFR 430.27(l). Petitioners must include in their petition any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption. The Assistant Secretary may grant the waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 430.27(l). Waivers remain in effect pursuant to the provisions of 10 CFR 430.27(m).

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<sup>1</sup> For editorial reasons, upon codification in the U.S. Code, Part B was re-designated Part A.

The waiver process also allows the Assistant Secretary to grant an interim waiver from test procedure requirements to manufacturers that have petitioned DOE for a waiver of such prescribed test procedures. 10 CFR 430.27(g). An interim waiver remains in effect for 180 days or until DOE issues its determination on the petition for waiver, whichever occurs earlier. DOE may extend an interim waiver for an additional 180 days. 10 CFR 430.27(h).

## **II. Petition for Waiver of Test Procedure**

On February 28, 2013, GE submitted a petition for waiver from the test procedure applicable to residential electric refrigerators and refrigerator-freezers set forth in 10 CFR part 430, subpart B, appendix A1. GE is seeking a waiver because it is developing new refrigerator-freezers that incorporate a dual-compressor design that is not contemplated under DOE's test procedure. In its petition, GE seeks a waiver from the existing DOE test procedure applicable to refrigerators and refrigerator-freezers under 10 CFR part 430 for the company's shared dual-compressor system products. In its petition, GE has set forth an alternate test procedure and notes in support of its petition that DOE has already granted Sub-Zero a similar waiver pertaining to the use of shared dual compressor-equipped refrigerators. See 76 FR 71335 (November 17, 2011) (interim waiver) and 77 FR 5784 (February 6, 2012) (Decision and Order). DOE has also granted an interim waiver to LG. See 77 FR 44603 (July 30, 2012). The reasons for which DOE granted Sub-Zero's waiver request and LG's interim waiver request apply as well to the GE basic models that are the subject of this waiver request: these models all use a shared compressor-based system with refrigerant-flow controlled by a 3-way valve and do not

have the independent, sealed systems that the DOE test procedure is designed to address. DOE has reviewed the alternate procedure and believes that it will allow for the accurate measurement of the energy use of these products, while alleviating the testing problems associated with GE's implementation of a dual compressor system.

GE also requests an interim waiver from the existing DOE test procedure. An interim waiver may be granted if it is determined that the applicant will experience economic hardship if the application for interim waiver is denied, if it appears likely that the petition for waiver will be granted, and/or the Assistant Secretary determines that it would be desirable for public policy reasons to grant immediate relief pending a determination of the petition for waiver. See 10 CFR 430.27(g).

For the reasons discussed above, DOE has determined that use of the currently required DOE test procedure would provide test results so unrepresentative as to provide materially inaccurate comparative data. Therefore, it appears likely that GE's petition for waiver will be granted. For these same reasons, DOE has also determined that it is desirable for public policy reasons to grant GE immediate relief pending a determination of the petition for waiver. DOE grants GE's application for interim waiver from testing of its refrigerator-freezer product line containing dual compressors.

Therefore, *it is ordered that*:

The application for interim waiver filed by GE is hereby granted for GE's refrigerator-freezer product lines that incorporate dual compressors subject to the following specifications and conditions below. GE shall be required to test and rate its refrigerator-freezer product line containing dual compressors according to the alternate test procedure as set forth in section III, "Alternate test procedure."

The interim waiver applies to the following basic models:

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DOE makes decisions on waivers and interim waivers for only those models specifically set out in the petition, not future models that may be manufactured by the petitioner. GE may submit a new or amended petition for waiver and request for grant of interim waiver, as appropriate, for additional models of refrigerator-freezers for which it seeks a waiver from the DOE test procedure. In addition, DOE notes that granting of an interim waiver or waiver does not release a petitioner from the certification requirements set forth at 10 CFR part 429.

Further, this interim waiver is conditioned upon the presumed validity of statements, representations, and documents provided by the petitioner. DOE may revoke or modify this interim waiver at any time upon a determination that the factual basis underlying the petition for waiver is incorrect, or upon a determination that the results

from the alternate test procedure are unrepresentative of the basic models' true energy consumption characteristics.

### **III. Alternate Test Procedure**

EPCA requires that manufacturers use DOE test procedures to make representations about the energy consumption and energy consumption costs of products covered by the statute. (42 U.S.C. 6293(c)) Consistent representations are important for manufacturers to use in making representations about the energy efficiency of their products and to demonstrate compliance with applicable DOE energy conservation standards. Pursuant to its regulations applicable to waivers and interim waivers from applicable test procedures at 10 CFR 430.27, DOE will consider setting an alternate test procedure for GE in a subsequent Decision and Order.

During the period of the interim waiver granted in this notice, GE shall test the products listed above according to the test procedures for residential electric refrigerator-freezers prescribed by DOE at 10 CFR part 430, subpart B, appendix A1, except that, for the GE products listed above only, include the following steps:

5.2.1.4 Dual Compressor Systems with Dual Automatic Defrost. The two-part test method in section 4.2.1 must be used, and the energy consumption in kilowatt-hours per day shall be calculated equivalent to:

$$ET = (1440 \times EP1/T1) + \sum_{i=1}^D [(EP2_i - (EP1 \times T2_i/T1)) \times (12/CT_i)]$$

Where:

- ET is the test cycle energy (kWh/day);
- 1440 = number of minutes in a day
- EP1 is the dual compressor energy expended during the first part of the test (it is calculated for a whole number of freezer compressor cycles at least 24 hours in duration and may be the summation of several running periods that do not include any precool, defrost, or recovery periods);
- T1 is the length of time for EPI (minutes);
- D is the total number of compartments with distinct defrost systems;
- i is the variable that can equal to 1,2 or more that identifies the compartment with distinct defrost system;
- EP2i is the total energy consumed during the second (defrost) part of the test being conducted for compartment i. (kWh);
- T2i is the length of time (minutes) for the second (defrost) part of the test being conducted for compartment i.
- 12 = conversion factor to adjust for a 50% run-time of the compressor in hours/day
- CTi is the compressor on time between defrosts for only compartment i. CTi for compartment i with long time automatic defrost system is calculated as per 10 CFR Part 430, Subpart B, Appendix A1 clause 5.2.1.2. CTi for compartment I with variable defrost system is calculated as per 10 CFR part 430 subpart B, Appendix A1 clause 5.2.1.3. (hours rounded to the nearest tenth of an hour).

#### Stabilization:

The test shall start after a minimum 24 hours stabilization run for each temperature control setting. Steady State for EP1: The temperature average for the first and last compressor cycle of the test period must be within 1.0 [degrees 1 F (0.6 [degrees 1 C) of the test period temperature average for each compartment. Make this determination for the fresh food compartment for the fresh food compressor cycles closest to the start and end of the test period. If multiple segments are used for test period 1, each segment must comply with above requirement.

#### Steady State for EP2i:

The second (defrost) part of the test must be preceded and followed by regular compressor cycles. The temperature average for the first and last compressor cycle of the test period must be within 1.0 [degrees 1 F (0.6 [degrees 1 C) of the EPI test period temperature average for each compartment.

#### Test Period for EP2i, T2i:

EP2i includes precool, defrost, and recovery time for compartment i, as well as sufficient dual compressor steady state run cycles to allow T2i to be at least 24 hours. The test period shall start at the end of a regular freezer compressor on-cycle after the previous defrost occurrence (refrigerator or freezer). The test period also includes the target defrost and following regular freezer compressor cycles, ending at the end of a regular freezer compressor on-cycle before the next defrost occurrence (refrigerator or freezer). If the previous condition does not meet 24 hours time, additional EP1 steady

state segment data could be included. Steady state run cycle data can be utilized in EP1 and EP2i.

#### Test Measurement Frequency

Measurements shall be taken at regular interval not exceeding 1 minute.

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#### **IV. Summary and Request for Comments**

Through today's notice, DOE grants GE an interim waiver from the specified portions of the test procedure applicable to GE's line of refrigerator-freezers with shared dual compressors and announces receipt of GE's petition for waiver from those same portions of the test procedure. DOE publishes GE's petition for waiver pursuant to 10 CFR 430.27(b)(1)(iv). The petition includes a suggested alternate test procedure to determine the energy consumption of GE's specified refrigerator-freezers with shared dual compressors. GE is required to follow this alternate procedure as a condition of its interim waiver, and DOE is considering including this alternate procedure in its subsequent Decision and Order.

DOE solicits comments from interested parties on all aspects of the petition, including the suggested alternate test procedure and calculation methodology. Pursuant to 10 CFR 430.27(b)(1)(iv), any person submitting written comments to DOE must also send a copy of such comments to the petitioner. The contact information for the petitioner is: Earl F. Jones, Senior Counsel, GE Appliances, Appliance Park 2-225, Louisville, KY 40225. All submissions received must include the agency name and case number for this proceeding. Submit electronic comments in WordPerfect, Microsoft Word, Portable Document Format (PDF), or text (American Standard Code for Information Interchange (ASCII)) file format and avoid the use of special characters or any form of encryption. Wherever possible, include the electronic signature of the author. DOE does not accept telefacsimiles (faxes).

Issued in Washington, DC, on April 26, 2013.

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Kathleen B. Hogan  
Deputy Assistant Secretary for Energy Efficiency  
Energy Efficiency and Renewable Energy

U.S. Department of Energy

Application for Interim Waiver and Petition for Waiver, 10CFR430, Subpart B,  
Appendix A1-Uniform Test Method for Measuring the Energy Consumption of  
Refrigerator-freezers

Case No.  
Non-Confidential Version

February 28, 2013

Submitted by:

Earl F. Jones  
Senior Counsel  
GE Appliances  
Appliance Park 2-225  
Louisville, KY 40225  
[earl.jones@ge.com](mailto:earl.jones@ge.com)  
502-452-3164 (voice)  
502-452-0395 (fax)

U.S. Department of Energy Application for Interim Waiver and Petition for Waiver,  
10CFR430, Subpart B, Appendix A1--Uniform Test Method  
for Measuring Refrigerator-Freezers

I. Introduction

GE Appliances, an operating division of General Electric Co., (“GE”) is a leading manufacturer and marketer of household appliances, including, as relevant to this proceeding, refrigerators, files this Petition for Waiver and Application for Interim Waiver (collectively, “Petition”). GE requests that the Assistant Secretary grant it a waiver from certain parts of the test procedure promulgated by the U.S. Department of Energy (“DOE” or “the Department”) for determining refrigerator-freezer energy consumption and allow GE to test its new refrigerator-freezer model pursuant to the modified procedure submitted herewith. This request is filed pursuant to 10 C.F.R. §430.27.

The Department’s regulations provide that the Assistant Secretary will grant a Petition upon “determin[ation] that the basic model for which the waiver was requested contains a design characteristic which either prevents testing of the basic model according to the prescribed test procedures, or the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption characteristics as to provide materially inaccurate comparative data.” 10 C.F.R. §430.27(l). GE requests that the Assistant Secretary grant this Petition on both grounds.

First, the refrigerator energy test procedure set forth in 10 CFR 430, Subpart B, Appendix A1 does not allow the energy used by GE's new refrigerator to be accurately calculated. The new refrigerator contains two compressors, each of which contributes to the cooling of the separate fresh-food and freezer compartments. Since the test procedure assumes that refrigerators have only one compressor it does not provide a method for calculating energy consumption of dual-compressor systems. Thus, GE's new model cannot be tested per the procedure.

Second, if GE were to test its new dual-compressor refrigerator per the test procedure the results of the energy test so conducted would not accurately measure the energy used by the new model.

## II. Background

GE has designed and has plans to market a new refrigerator. In order to be assured that it is correctly calculating the energy consumption of the product, that the product meets the minimum energy requirements for its product class and is properly labeled, GE seeks the Department's expeditious concurrence to its proposed amendment to the refrigerator test procedure to provide for testing of dual compressor models.

DOE granted Sub-Zero's waiver petition<sup>2</sup> for refrigerators equipped with dual compressors acknowledging that the existing test procedure cannot properly measure the energy usage of refrigerators with dual systems. Thereafter, the Department granted LG Electronics USA, Inc.'s interim waiver application for its dual-compressor product.<sup>3</sup>

## III. GE's Proposed Test Procedure

In light of the above and since GE proposes to test its product in accordance with the test procedure that DOE has already approved for use by Sub-Zero and LG, the Department should grant GE's Petition and permit it to use the Sub-Zero-approved test procedure, which is set forth in Attachment 1 hereto.

The reasons DOE granted Sub-Zero's waiver request apply as well to GE's product: GE's refrigerator also has a shared compressor system with refrigerant-flow controlled by a 3-way valve. It does not have the independent, sealed systems assumed by the DOE test procedure. As a result, it cannot be tested using the DOE test procedure. Moreover, using the test procedure would yield test results so unrepresentative as to provide materially inaccurate comparative data.

The waiver should continue in effect until DOE amends the test procedure to accommodate such products. GE also requests that the Department grant an interim waiver to test and rate the models listed on Attachment 2.

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<sup>2</sup> Sub-Zero, 77 Fed. Reg. 5784, Feb. 6, 2012.

<sup>3</sup> LG, 77 Fed. Reg. 44603, July 30, 2012

We would be pleased to discuss this request with DOE and provide further information as needed.

GE requests expedited treatment of the Petition and Application.

I hereby certify that all manufacturers of domestically marketed units of the same product type have been notified of this Petition and Application, list of which is found in Attachment 3, hereto.

Respectfully submitted,

Earl F. Jones, Senior Counsel and  
Authorized Representative of GE Appliances

#### ATTACHMENT 1

$$ET = (1440 \times EP1/T1) + \sum_{i=1}^D [(EP2_i - (EP1 \times T2_i/T1)) \times (12/CT_i)]$$

Where:

- ET is the test cycle energy (kWh/day);
- 1440 = number of minutes in a day
- EP1 is the dual compressor energy expended during the first part of the test (it is calculated for a whole number of freezer compressor cycles at least 24 hours in duration and may be the summation of several running periods that do not include any precool, defrost, or recovery periods);
- T1 is the length of time for EPI (minutes);
- D is the total number of compartments with distinct defrost systems;
- i is the variable that can equal to 1,2 or more that identifies the compartment with distinct defrost system;
- EP2<sub>i</sub> is the total energy consumed during the second (defrost) part of the test being conducted for compartment i. (kWh);
- T2<sub>i</sub> is the length of time (minutes) for the second (defrost) part of the test being conducted for compartment i.
- 12 = conversion factor to adjust for a 50% run-time of the compressor in hours/day
- CT<sub>i</sub> is the compressor on time between defrosts for only compartment i. CT<sub>i</sub> for compartment i with long time automatic defrost system is calculated as per 10 CFR Part 430, Subpart B, Appendix A1 clause 5.2.1.2. CT<sub>i</sub> for compartment I with variable defrost system is calculated as per 10 CFR part 430 subpart B, Appendix A1 clause 5.2.1.3. (hours rounded to the nearest tenth of an hour).

Stabilization:

The test shall start after a minimum 24 hours stabilization run for each temperature control setting. Steady State for EP1: The temperature average for the first and last compressor cycle of the test period must be within 1.0 [degrees 1 F (0.6 [degrees 1 C) of the test period temperature average for each compartment. Make this determination for the fresh food compartment for the fresh food compressor cycles closest to the start and

end of the test period. If multiple segments are used for test period 1, each segment must comply with above requirement.

Steady State for EP2<sub>i</sub>:

The second (defrost) part of the test must be preceded and followed by regular compressor cycles. The temperature average for the first and last compressor cycle of the test period must be within 1.0 [degrees 1 F (0.6 [degrees 1 C) of the EPI test period temperature average for each compartment.

Test Period for EP2<sub>i</sub>, T2<sub>i</sub>:

EP2<sub>i</sub> includes precool, defrost, and recovery time for compartment i, as well as sufficient dual compressor steady state run cycles to allow T2<sub>i</sub> to be at least 24 hours. The test period shall start at the end of a regular freezer compressor on-cycle after the previous defrost occurrence (refrigerator or freezer). The test period also includes the target defrost and following regular freezer compressor cycles, ending at the end of a regular freezer compressor on-cycle before the next defrost occurrence (refrigerator or freezer). If the previous condition does not meet 24 hours time, additional EP1 steady state segment data could be included. Steady state run cycle data can be utilized in EP1 and EP2<sub>i</sub>.

Test Measurement Frequency

Measurements shall be taken at regular interval not exceeding 1 minute.

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ATTACHMENT 2

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[FR Doc. 2013-10395 Filed 05/01/2013 at 8:45 am; Publication Date: 05/02/2013]